Circular economy approach in Electric Vehicles' battery packs

Developing an innovative and competitive lightweight battery with the objective to accelerate the mass market take-up of electric and hybrid vehicles.

The MARBEL project focuses on the **need for fast-charging and long-lasting batteries to boost end-user demands**, while applying high modularity and easy assembly and developing novel testing methodologies.

The project designs, develops and demonstrates **new modular, compact, lightweight and high-performance battery packs together with flexible and robust Battery Management Systems for battery Electric Vehicles and plug-in hybrids**, while maintaining safety levels, allowing fast, high quality and cost-effective large-scale production and following eco-design principles.

3,5 years duration
1st January 2021 - 30th June 2024

Budget
11,7M€, of which 9,8M€ funded by the European Commission under the Horizon 2020 research and innovation programme.

MARBEL

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Consortium:

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MARBEL

Manufacturing the next generation of battery packs for the automotive mass-market

Innovative Electric Vehicles' batteries for an environment-friendly and lighweight mobility

MARBEL

Batteries features

Design for Assembly & Dissassembly
Advanced battery packs using a Design-for-Assembly and Disassembly methodology.

Ligthweighting the battery package
Reducing the weight of the metallic parts.

2nd life reuse
Solutions and processes for parts' sustainable dismantling and 2nd life.

Advanced BMS
Flexible advanced Battery Management Systems (BMS).

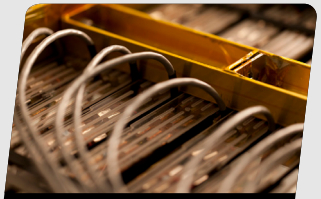
Ultra-fast charging
Ultra-fast charging strategies and enhanced thermal management for an extended useful battery life.

Performance & safety
Procedures for characterisation and validation of future performance and safety.

Research & Innovation on Electric Vehicles' batteries

Fostering the acceptance and use of Electric Vehicles by solving two of the main critical points in consumer's decision-making: **limited vehicle autonomy and charging time, enabling to travel longer distances**.

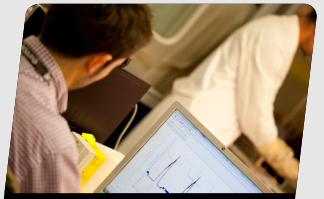
The MARBEL project contributes to solving EU industry and societal challenges to meet the European emission reduction target of 40% by 2030.



Advanced battery packs and materials

Solutions and processes for sustainable dismantling and 2nd life

Ultra-fast charging strategies & enhanced thermal management



Procedures for characterisation & validation of future performance

Lightweight and sustainable Battery Packaging

Modular and flexible battery management systems

Project Phases:

1. MARBEL requirements set up
2. Development of solutions and components
3. Battery manufacturing, assembly and dismantling
4. Validation and demonstration